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ABSTRACT

The Mountain-Valley Library System (MVLS), a cooperative of 19 public and academic libraries in nine northern California counties, performed a cost study of its interlibrary delivery system during fall, 1977. This report discusses the results of item count for all 62,000 materials handled in the system during a two-month sample period and projects a yearly volume by shipping library and by material category. Costs are projected for continuing the service during FY 1978-1979 and FY 1979-1980 using a dedicated van system. These costs are compared to projections for use of other carriers including United Parcel Service. Conclusions show that, for the desired speed of delivery arrival, packaging time costs, and integrity of the shipment method, the use of dedicated delivery vans is the most cost efficient delivery. Schedules, routes, mileage charts, and sample forms and instructions used during the study are appended. (Author/JPF)

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MOUNTAIN-VALLEY LIBRARY SYSTEM DELIVERY STUDY, 1977

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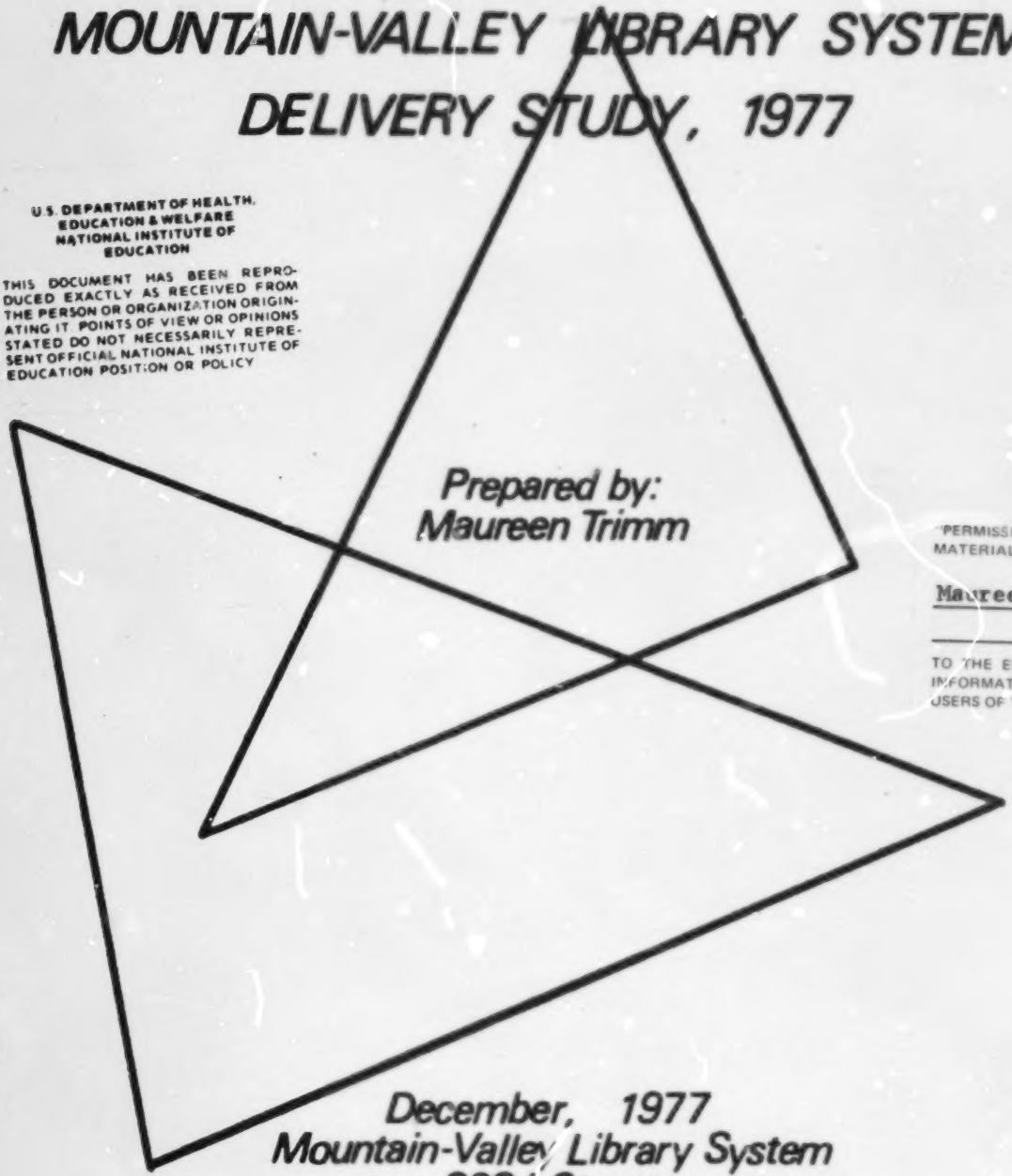

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December, 1977
Mountain-Valley Library System
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DELIVERY SCHEDULE
DELIVERY SAMPLE FORMS
MVLS VAN SCHEDULE
TRI-SYSTEM VAN SCHEDULE

CHAPTER I

INTRODUCTION

Mountain-Valley Library System (MVLS) is a cooperative network of public, academic and special libraries which exists to provide better library service to all residents in its 9-county service area, through resource sharing. The process of resource sharing necessitates a communications medium to find out what resources are available where, and a delivery network to move these resources from one location to another.

For the past nine years, the delivery methodology used by MVLS has been a van network. As MVLS has expanded its membership to the present 19 libraries, the delivery van system has expanded to a three vehicle fleet (two full-time vans, one backup station wagon) employing two full-time drivers, making a total 129 stops on a regular weekly schedule. (See delivery schedule in Appendix.) A map of Delivery Points and routes is on Page 2.

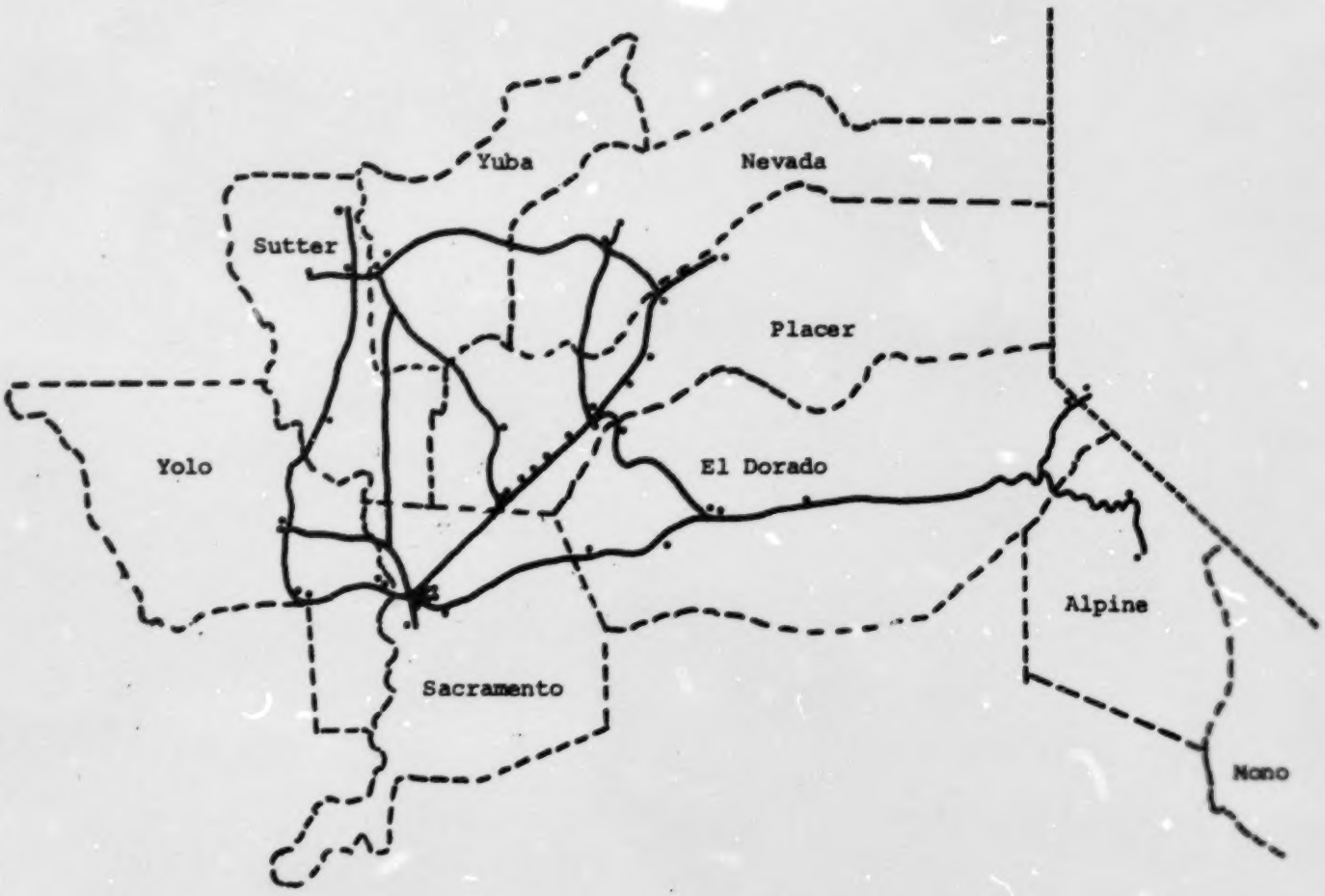
The costs of maintaining this delivery system increase every year as salaries rise to meet inflation, and gasoline prices, vehicle replacement costs and labor for routine equipment servicing increase. These increases are particularly felt around budget time each year, as the MVLS staff and Executive Council seek grant money to support the System's continuation. During the planning phase of the 1977-78 budget, it was decided that the delivery network needed to be studied as to its costs and benefits as a planning tool for future years. The MVLS Resource Development Librarian was assigned the task of designing and conducting the study which analyzes the delivery system during July - December, 1977.

This report is the final phase of the study. As a completed report, it is meant only as an analysis of the current delivery methodology, a look at some alternative methods, and a recommendation as to the delivery method which seems to be the most cost effective for MVLS. It is a planning document for the MVLS Executive Council.

The primary cost figure used in this study is "cost per item" for delivery between points. This figure is an accurate representation for any delivery service which determines cost by weight, such as the U.S. Mail, United Parcel Service, Greyhound, and most contract carriers. The figure is somewhat theoretical for a fixed costs dedicated delivery van service (that is, a service which is "dedicated" to one purpose, in MVLS's case, dedicated to a particular route open only to interlibrary materials). The total cost for MVLS van delivery is a fixed yearly amount determined by the salary of the drivers, the cost of the vehicles and the operating expenses for fuel and maintenance. These costs do not vary by the weight or the number of items carried. A "cost per item" figure has been determined for the current MVLS van network as a common denominator for comparing various delivery alternatives. An increase or decrease in the number of items carried, within limits, would not affect the actual fixed costs of such a dedicated van network (assuming no change in locations or frequency of stops) although the cost per item statement would change. This distinction between cost per item for a private van delivery service and for a contract or common carrier delivery service is important to the use of this document in planning future expenditures.

MOUNTAIN-VALLEY LIBRARY SYSTEM

Delivery Points
Dedicated Van Service, 1977



Scale: 1" = 20 miles

CHAPTER II

THE SAMPLE

The first step in the delivery study was to determine the number and type of items carried in the network. The absolute number of items carried was necessary for the cost per item determination. The sending location and receiving location notation permits an analysis of traffic per stop. The type of item carried determination gives data for categorization of expenses for different programs (e.g., film circuit, branch deliveries, reciprocal borrowing).

The delivery study was conducted as soon as possible in the 6-month study time frame. July was spent in planning for the study, preparing forms and instructing sample takers. During August and September, every item carried on the MVLS delivery vans was tallied by the shipping library. The instructions for the sample tallying and the forms used are included in the Appendix along with a list of locations participating in the sample. The data gathered during the sample is presented on the following pages.

Contents:

Delivery Sample Data, August, 1977, by location
Delivery Sample Data, August, 1977, by item type
Delivery Sample Data, September, 1977, by location
Delivery Sample Data, September, 1977, by item type
Delivery Sample Totals, by location
Delivery Sample Totals, by item type

DELIVERY SAMPLE DATA, AUGUST, 1977

By Locations

LIBRARY	TOTAL ITEMS RECEIVED	TOTAL ITEMS SENT		Items Sent as Branch Shipments	Items Sent Between System Members	
Alpine	90	52	.2%		52	.6%
Auburn-Placer	3,518	3,272	11.0%	2,469	803	9.3%
CSL	315	242	.8%		242	2.8%
CSUS	198	111	.4%		111	1.3%
Cosumnes	44	29	.1%		29	.3%
El Dorado	2,751	2,756	9.4%	2,293	463	5.4%
Lincoln	19	86	.3%		86	1.0%
MVIC	2,003	2,682	9.1%		2,682	31.0%
Nevada County	2,246	2,311	7.8%	1,686	625	7.3%
Roseville Hospital	35	11	n.s.		11	.1%
Roseville Public	217	202	.7%		202	2.3%
Sac City College	41	20	n.s.		20	.2%
Sac Public	13,827	13,562	46.1%	12,921	641	7.4%
Sierra	40	-			-	
Sutter	1,258	1,497	5.1%	627	870	10.0%
UCD	207	264	.9%		264	3.1%
UCD Med Center	16	65	.2%		65	.8%
Yolo	1,234	1,453	4.9%	833	620	7.2%
Yuba College	60	-			-	
Yuba County	800	681	2.3%		681	7.9%
Woodland	91	90	.3%		90	1.0%
Stateline, Nevada	47	5	n.s.		5	n.s.
IMC	52	54	.2%		54	.6%
NBCLS	122					
NSCLS	214					
TOTALS	29,445	29,445	100.0%	20,829	8,616	100.0%

DELIVERY SAMPLE DATA, AUGUST, 1977
By Item Type

ITEMS CARRIED WEEK ENDING: / ITEM TYPE	August 5		August 12		August 19		August 26		MONTHLY TOTAL	
	Total	%-Total	Total	%-Total	Total	%-Total	Total	%-Total	Total	%-Total
ILL Deliveries (1)	618	10.0%	550	7.0%	611	7.7%	509	6.7%	2,288	7.8%
Returns (2)	1,018	16.5%	1,081	13.8%	994	12.6%	951	12.6%	4,044	13.7%
Requests and Status Reports (3, 11)	147	2.4%	144	1.8%	201	2.7%	144	1.9%	636	2.2%
Branch Shipments (4)	3,879	62.7%	5,622	71.8%	5,761	73.2%	5,567	73.6%	20,829	70.7%
Film Circuit (5,6)	146	2.4%	94	1.2%	55	.7%	155	2.1%	450	1.5%
Correspondence (7,8)	254	4.1%	232	3.0%	187	2.4%	172	2.3%	845	2.9%
Supplies (9)	43	.7%	54	.7%	20	.2%	16	.2%	133	.5%
Equipment (10)	2	*	6	*	1	*	0		9	*
Misdirected (12)	32	.5%	26	.3%	24	.3%	22	.3%	104	.4%
Miscellaneous (13)	16	.3%	9	.1%	16	.2%	15	.2%	56	.2%
IMC (14)	30	.5%	10	.1%	3	*	8	.1%	51	.2%
TOTALS	6,185		7,828		7,873		7,559		29,445	

*Not a significant percentage, less than .1%

DELIVERY SAMPLE DATA, SEPTEMBER, 1977

By Location

LIBRARY	TOTAL ITEMS RECEIVED	TOTAL ITEMS SENT		Items Sent as Branch Shipments	Items Sent Between System Members	
Alpine	86	72	.2%		72	.7%
Auburn-Placer	4,974	4,651	14.5%	3,728	923	9.4%
CSL	423	292	.9%		292	3.0%
CSUS	280	145	.5%		145	1.5%
Cosumnes	80	57	*		57	.6%
El Dorado	2,715	2,770	8.6%	2,244	526	5.4%
Lincoln	25	69	.2%		69	.7%
MVIC	2,200	3,028	9.4%		3,028	31.0%
Nevada	2,610	2,762	8.6%	1,971	791	8.0%
Roseville Hospital	53	19	*		19	.2%
Roseville Public	273	314	1.0%		314	3.2%
Sac City College	59	-				
Sac Public	14,493	14,204	44.2%	13,493	711	7.3%
Sierra	61	41	*		41	.4%
Sutter	1,129	1,427	4.4%	453	974	10.0%
UCD	228	345	1.1%		345	3.5%
UCD Med Center	14	62	*		62	.6%
Yolo	904	920	2.9%	462	458	4.7%
Yuba College	77	37	*		37	.4%
Yuba County	916	747	2.3%		747	7.6%
Woodland	103	137	.4%		137	1.4%
Stateline, Nevada	28	28	*		28	.3%
IMC	2					
NBCLS	168					
NSCLS	226					
TOTALS	32,127	32,127	100.0%	22,351	9,776	100.0%

DELIVERY SAMPLE DATA, SEPTEMBER, 1977
By Item Type

ITEMS CARRIED WEEK ENDING:	September 2		September 9		September 16		September 23		September 30		MONTHLY TOTAL	
ITEM TYPE	Total	%-Total	Total	%-Total	Total	%-Total	Total	%-Total	Total	%-Total	Total	%-Total
ILL Deliveries (1)	509	6.7%	335	7.4%	578	7.3%	485	7.5%	582	10.3%	2,489	7.8%
Returns (2)	1,042	13.7%	715	15.9%	1,026	13.0%	1,007	15.6%	907	16.0%	4,697	14.6%
Requests and Status Reports (3,11)	117	1.5%	98	2.2%	139	1.8%	161	2.5%	131	2.3%	646	2.0%
Branch shipments (4)	5,439	71.5%	2,834	63.0%	5,895	74.5%	4,481	69.4%	3,702	65.4%	22,351	69.6%
Film Circuit (5,6)	191	2.5%	125	2.8%	42	.5%	81	1.3%	66	1.2%	505	1.6%
Correspondence (7,8)	184	2.4%	185	4.1%	167	2.1%	149	2.3%	187	3.3%	872	2.7%
Supplies (9)	55	.7%	186	4.1%	17	.2%	28	.4%	12	.2%	298	.9%
Equipment (10)	5	*	-	-	3	*	4	*	-	-	12	*
Misdirected (12)	19	.2%	9	.2%	27	.3%	25	.4%	37	.7%	117	.4%
Miscellaneous (13)	40	.5%	4	*	19	.2%	38	.6%	33	.6%	134	.4%
IMC (14)	2	*	2	*	-	-	2	*	-	-	6	*
TOTALS	7,603		4,493		7,913		6,461		5,657		32,127	

*Not a significant percentage; less than .1%.

DELIVERY SAMPLE TOTALS
By Locations

LIBRARY	TOTAL ITEMS RECEIVED	TOTAL ITEMS SENT		Items sent as Branch Shipments	Items Sent Between System Members	
Alpine	176	124	.2%		124	.7%
Auburn-Placer	8,492	7,923	12.9%	6,197	1,726	9.4%
CSL	738	534	.9%		534	2.9%
CSUS	478	256	.4%		256	1.4%
Cosumnes	124	86	*		86	.5%
El Dorado	5,466	5,526	9.0%	4,537	989	5.4%
Lincoln	44	155	.3%		155	.8%
MVIC	4,203	5,710	9.3%		5,710	31.0%
Nevada	4,856	5,073	8.2%	3,657	1,416	7.7%
Roseville Hospital	88	30	*		30	*
Roseville Public	490	516	.8%		516	2.8%
Sac City College	100	20	*		20	*
Sac Public	28,320	27,766	45.1%	26,414	1,352	7.4%
Sierra	101	41	*		41	.2%
Sutter	2,387	2,924	4.7%	1,080	1,844	10.0%
UCD	435	609	1.0%		609	3.3%
UCD Med Center	30	127	.2%		127	.7%
Yolo	2,138	2,373	3.9%	1,295	1,078	5.9%
Yuba College	137	37	*		37	.2%
Yuba County	1,716	1,428	2.3%		1,428	7.8%
Woodland	194	227	.4%		227	1.2%
Stateline, Nevada	75	33	*		33	*
IMC	54	54	*		54	*
NBCLS	290					
NSCLS	440					
TOTALS	61,572	61,572	100.0%	43,180	18,392	100.0%

DELIVERY SAMPLE TOTALS

By Item Type

ILL Deliveries	4,777	7.8%
Returns	8,741	14.2%
Requests and status reports	1,282	2.1%
Branch shipments	43,180	70.1%
Film circuit	955	1.6%
Correspondence	1,717	2.8%
Supplies	431	.7%
Equipment	21	*
Misdirected	221	.4%
Miscellaneous	190	.3%
IMC	57	*
TOTALS	61,572	100.0%

*Not a significant percentage, less than .2%

CHAPTER III

YEARLY PROJECTIONS

A sample is a subset of a population. In this study, the sample, the number and variety of items sent on the MVLS delivery vans during the 2-month sampling period, is a subset of the totality of a full year's volume of delivery items. Unfortunately, because of the limited time frame set for the study, the sample is not random. It is therefore necessary to weight the sample in order for it to be truly representative of the population. The following chapter takes the sample data and makes it meaningful for analysis.

Contents:

Projection weighting rationale
Projection weighting factor computation
FY 77/78 total item projections

Projection Weighting Rationale

The sample count is an exact tally of all items sent on the delivery vans during August and September, 1977. This sample period is the only effort made during the nine years the MVLS vans have been on the road to determine a precise count of items carried on these vans. Without known variations of the entire population, i.e., the number of items carried during a full year, it is hard to project the two-month sample to cover a twelve-month period of time. The most obvious way would be to multiply the sample total by 6. Unfortunately, the number thus derived would not be accurate as it would not reflect seasonal trends.

Based upon "expert" testimony, we know that August is a representative low month for delivery volume. The academic libraries are requesting and filling fewer titles; some are even closed for the entire month. Using the same "expert" testimony (that of people who fill requests, put materials on the vans, and supervise the drivers), we also know that September is an average fall month in terms of delivery, that is, somewhat busier than the summer, but not as busy as the mid-winter crush. Just exactly what that factor is which would reflect the seasonal variation is debated by the "experts".

Instead of just pulling a figure from the air, 10% or 20% or even 25% to reflect the "average" by which the sample total would be skewed, we attempted to come up with a more accurate weighting figure.

By applying this weighting factor to the sample figure, it is hoped that inferences made about the population would have the best chance of being correct. Obviously, accuracy is desirable, particularly when the population inference (the total number of items carried on the delivery van during a twelve-month time frame) will be manipulated with dollar amounts in making decisions about future methods of delivering materials.

The volume of business handled at MVIC is representative of the interlibrary loan trends experienced by all System libraries. This assumption must be accepted as given in the weighting factor computations, and it is reasonable, not only in trends but in exact numerical count, since MVIC business accounts for 31% of the ILL volume carried on the vans. If a reliable value can be determined for the ILL yearly variation at MVIC, this can be transferred to the entire delivery system. The following computation is an estimate of the variation in monthly ILL volume at MVIC as derived from the FY 76/77 trend. (MVIC stands for Mountain-Valley Information Center, the ILL center for the System which is located at the MVLS Headquarters.)

Projection Weighting Factor Computation

Requests filled by MVLS Members, FY 76/77		Deviation $(X-\overline{X})$	Deviation Squared $(X-\overline{X})^2$
July	1,277	-178	16,384
August	1,335	- 70	4,900
September	1,169	-236	55,695
October	1,332	- 73	5,329
November	1,271	-134	17,956
December	1,141	-264	69,696
January	1,380	- 25	625
February	1,588	183	33,489
March	1,903	498	248,004
April	1,656	251	63,001
May	1,533	128	16,384
June	1,272	-133	17,689
	16,857		549,153

mean $\overline{X}$ = 1,405
Sample size (n) = 12

S^2 (Sample variance) = $\frac{\sum (X-\overline{X})^2}{n-1} = \frac{549,153}{11} = 49,923$

S (Sample standard variation) = $\sqrt{49,923} = 223.43$

Standard deviation ratio = $\frac{\overline{X}}{S} = \underline{\underline{16\%}}$

If the sample was an unbiased estimator, that is, if the average population estimate from repeated samples from different two-month time periods would equal the population estimate determined from this sample, then the standard deviation ration (the 16% weighting factor) would be a plus and/or minus figure. In this case, we know that the sample is a negatively biased estimator because historical data tells us that August and September are always low delivery volume months. Therefore, the 16% weighting factor is a positive figure.

FY 77/78 Total Item Projections
By Location

Library	(A) Total items sent during sample period (Aug.-Sept., 1977)	(B) Projections for FY 77/78 (A x 6)	(C) Weighted Projections for FY 77/78 (B + 16%)
Alpine County	124	744	863
Auburn-Placer County	7,923	47,538	55,144
CSL	534	3,204	3,717
CSUS	256	1,536	1,782
Cosumnes River College	86	516	598
El Dorado County	5,526	33,156	38,461
Lincoln Public	155	930	1,079
MVIC	5,710	34,260	39,742
Nevada County	5,073	30,438	35,308
Roseville Hospital	30	180	209
Roseville Public	516	3,096	3,591
Sac City College	20	120	139
Sac Public	27,766	166,596	193,251
Sutter County	2,924	17,544	20,351
Sierra College	41	246	285
UCD	609	3,654	4,239
UCD Med Center	127	762	884
Yolo County	2,373	14,238	16,516
Yuba College	37	222	257
Yuba County	1,428	8,568	9,939
Woodland Public	227	1,362	1,580
Stateline, Nevada	33	198	230
IMC	54	324	376
NBCLS			
NSCLS			
TOTALS	61,572	369,432	428,541

FY 77/78 Total Item Projection
By Item Type

ILL Deliveries	7.8%	33,426
Returns	14.2%	60,853
Requests and status reports	2.1%	8,999
Branch shipments	70.1%	300,407
Film circuit	1.6%	6,857
Correspondence	2.8%	11,999
Supplies	.7%	3,000
Misdirected	.4%	1,714
Miscellaneous, equipment	.3%	1,286
TOTALS	100.0%	428,541

CHAPTER IV

DELIVERY VAN COSTS

The actual computation of program costs for the MVLS delivery van service can be easily obtained for the past fiscal year, FY 76/77. The current year is harder to accurately state as the year is only 3 months old at the time this report was prepared. As the continuation of van service needs to be analyzed on the basis of what it will cost in the future (we're already committed to FY 77/78 costs), the cost consideration used in this study is based on cost projections for FY 78/79. The following section of the report is a breakdown of what it costs to run the MVLS delivery network using a dedicated van.

Contents:

Costs
Cost per stop

MVLS CURRENT DELIVERY VAN COSTS

	Actual costs for van delivery FY 1976/77	Projected Cost for van delivery FY 1978/79
Salary + benefits		
2 drivers	$27,000	$28,600
Relief driver		2,000
Total Salaries/benefits	$27,000	$30,600
Operating expenses		
Fuel, oil		$ 4,700
Maintenance		2,500
Insurance		800
Tires		400
Total Operating expenses	$13,318	$ 8,400
Equipment (Vehicle cost)		
$5,500 each - Jan., 1975 = $11,000 prorated for 2 1/2 years useable vehicle lifetime*	$ 4,400	
$19,500 for 2 vehicles with necessary modifications, July, 1978, price - prorated for 2 1/2 years lifetime		$ 7,800
Total Equipment (Vehicle cost)	$ 4,400	$ 7,800
GRAND TOTALS	$44,718	$46,800

MVLS van delivery costs per item = 10.9¢ 428,541 items for $46,800

Assumption 1: The weighted projection for FY 77/78 delivery total equals the projected total of items delivered in FY 78/79.

Assumption 2: No delivery or pickup points will be added to or deleted from the delivery schedule.

Assumption 3: Two new delivery vehicles will be purchased in July, 1978, for MVLS runs.

*Useable vehicle lifetime is based upon actual experience, with one engine rebuild after 18 months (100,000 miles) and replacement after 30 months (175,000 miles).

COST PER STOP

Cost per item is probably the most meaningful statistic for comparison of various delivery methods as explained in the introduction of this report. It will therefore be used throughout this report. There is one other breakout of costs which is interesting (if not particularly useful), cost per delivery stop. This is obviously not a full indicator of the service a library gets from the delivery network, because it does not take volume into account. It can also be misleading when applied to a delivery network as diverse as MVLS's. In actuality, it costs more to run the delivery van between libraries 50 miles apart than it does to make a short 5-mile hop from one library to another. Yet each may be receiving equal levels of service. A true cost per stop formula would weigh together mileage from the starting point, distance from the previous delivery stop, how far off the main transport route is any particular stop, and a host of other factors. But an equal division of total network costs by the actual number of stops is the figure usually seen.

When it comes down to the "bottom line", the only reason for determining a cost-per-stop figure is that many other library delivery networks do so. So, with a nod to tradition, here then are some statistics. The projected cost for the MVLS delivery network for FY 78/79 is $46,800. The adjusted total stops (see note at bottom of following table for adjustments) equal 110 per week.

Location	No.of stops per week	Cost/Stop	Cost/Location/FY 78/79
Alpine	1	$425.4545 per stop	$ 425.45
Auburn-Placer	19*		8,083.63
CSUS	5		2,127.27
Cosumnes	3		1,276.36
El Dorado	11*		4,680.00
Lincoln	3		1,276.36
Mono	0		0
Nevada County	13*		5,530.91
Roseville Hosp.	2		850.91
Roseville Public	8		3,403.64
Sac City College	3		1,276.36
Sacramento Public	9*		3,829.09
Sierra	3		1,276.36
Sutter	8*		3,403.64
UCD	5		2,127.27
UCD - Med Center	3		1,276.36
Yolo	9**		3,829.09
Yuba County	5***		2,127.27
TOTALS	110	$46,800.00	$46,800.00

* includes branch stops
** includes branch stops and Woodland Library
*** includes Yuba College
NOTE: 8 MVIC, 4 CSL and 1 Stateline Nevada stops are not included; 9 IMC stops not included, but 3 IMC van reciprocal stops at APCL and Nevada County branches are.

CHAPTER V

ALTERNATIVE DELIVERY METHODS

The previous chapters of this study looked at the method by which Mountain-Valley Library System currently operates a delivery service. To analyze this method, we must look at and compare other methods of delivering material. One obvious alternative method is to use a common carrier instead of a dedicated van. In order to have some experience with this alternative, MVLS has been conducting a delivery test model using United Parcel Service. The report of this model is included in the following section of this study, along with comments on and cost projections for other delivery alternatives.

Contents:

UPS delivery model report
UPS delivery alternative - costs for entire network
Other delivery alternatives

(Also see a reduced route dedicated van alternative as explained in Chapter VI, Page 32.)

MVLS UPS DELIVERY MODEL

Report - November, 1977

As proposed in the MVLS 1977/78 LSCA grant, we have been conducting a delivery model of United Parcel Service in the Lake Tahoe Region. Truckee, Tahoe City, South Lake Tahoe and Markleeville have had UPS intertie service since late May, 1977. The intertie was to be used for film packet shipment, interlibrary loans and returns. In practice, the UPS service has been used almost exclusively for film shipments. (See chart on next page.)

At the July MVLS Executive Council meeting, an extension of UPS delivery to Mono County was approved. All interlibrary loans sent to Mono County come first to MVIC where they are packaged and shipped via UPS. This procedure gave the delivery model experience with book delivery, while the Tahoe area model offered experience with film delivery.

During the May-September UPS period, the Truckee branch used UPS only twice. As the service contract costs $2.00 per week whether any packages are shipped or not, it was decided to drop the Truckee UPS account. This decision was made by MVLS staff and the Nevada County librarian.

The Alpine account has been similarly inactive. Much of this was because of the staff turnover. For two months, Alpine was without a librarian and participated in very limited ILL and no film ILL. The new Alpine librarian intends to start film programming and greater sharing of the South Lake Tahoe film packet. While past experience has indicated a nonexistent level of UPS usage at Alpine, the situation is expected to change.

South Lake Tahoe and Tahoe City have been the major users of the UPS service. As the accompanying statistics show, the major use has been for films. It is anticipated that these conditions will continue. Branch librarians have been very satisfied with the service, particularly since it allows them to participate in the MVLS film circuit. Without UPS delivery, there would be no fast, reliable delivery method for interchanging films.

The Mono County experience with UPS has been most satisfactory. All ILL's are delivered from MVIC to Mono County Library. While it costs 4.9 times more to use UPS than the previous use of library rate mail (based on average 3 lb. package which costs 93¢ to ship via UPS and 19¢ to ship via U.S. Mail Library Rate: 93¢/19¢=4.9), the UPS service is quick and reliable. Depending on the day the package was put into the UPS delivery network, it took 2-3 days until receipt at Mono County. This compares with a 3-day to 2-week range with the U.S. Mail.

Mono County has returned their loans to MVIC via U.S. Mail. By getting the packages to the post office at a certain time each day, most of the packages were received at MVIC the following day. The special mail route used comes directly from Bridgeport to Sacramento thru Reno - as opposed to the longer Sacramento to Los Angeles to Bridgeport circuit.

UPS DELIVERY USE

Lake Valley (South Lake Tahoe - SLT)

Month (1977)	Packages	Weight/lbs.	To	Type of Items	Package Cost	Service Cost	Total
May (1 week)	5	69	TC	Film packet	$ 7.80	$ 2.00	$ 9.80
June	1	6	TC	Film packet	1.06	8.00	
	1	2	MVIC	Sample	.81		9.87
July	2	4	MVIC	Sample	1.62	10.00	
	8	72	TC	Film packet	9.24		20.86
Aug.	1	4	T	ILL	.94	8.00	
	1	18	TC	Film packet	1.83		10.77
Sept.	5	85	TC	Film packet	8.84	10.00	18.84

Alpine County

May thru October 1, 1977				No packages were sent by Alpine		26.00	26.00

Tahoe City (TC)

May	6	64	SLT	Film packet	8.11	2.00	
(1 week)	1	1	T	ILL	.81		10.92
June	1	1	MVIC	Sample	.81	8.00	
	1	1	T	ILL	.81		
	5	60	SLT	Film packet	7.11		16.73
July	2	2	MVIC	Sample	2.75	10.00	
	6	58	SLT	Film packet	7.13		19.88
Aug.	5	49	SLT	Film packet	7.24	8.00	15.24
Sept.	2	4	T	ILL	1.48	10.00	
	2	2	SLT	ILL	1.61		
	6	74	SLT	Film packet	8.93		22.02

Truckee (T)

Month (1977)	Packages	Weight/lbs.	To	Type of Items	Package Cost	Service Cost	Total
May (1 week)	0	0	0	0	0	2.00	2.00
June	0	0	0	0	0	8.00	8.00
July	1	8	SLT	ILL film	1.19	10.00	11.19
Aug.	1	4	TC	ILL	.94	8.00	8.94
Sept.	0	0	0	0	0	10.00	10.00
Oct. to cancellation					0	2.00	2.00

MVIC to Mono County Library

Month (1977)	Packages	Weight	Items*	Package Cost	Service Cost	Total
July (partial month)	4	31 lb.	23	$ 5.26	$ 2.00	$ 7.26
August	19	80 lb.	56	$19.55	$ 8.00	$27.55
September	16	72 lb.	49	$17.06	$10.00	$27.06
Totals	39	183 lb.	128	$41.87	$20.00	$61.87

*items include books, photocopies, correspondence.

Cost per item = 32.7¢ excluding service charge
Cost per item = 48.3¢ including service charge

No. of items/package = 3.28 average. This figure is lower than expected because of several packages sent which contain only one item. The Mono County Library traffic experiences many low volume days. By sampling the weight of materials shipped from the Mountain-Valley Information Center, it was determined an average shipment prepared for UPS, using #6 jiffy bags, would contain 4 interlibrary loan items and weigh 2.8 lbs. As UPS package costs are based on full pound figures, with any weight fraction over the pound going at the next higher rate, a package weighing 2.8 lbs. would therefore be charged the 3 lb. rate.

UPS COST PROJECTIONS

To continue the UPS model to the end of its test period (December 31, 1977), projected costs are:

	Package Cost	Service Costs	Total Projection	Already Spent	Model Total
Mono County					
October	$18.00	$ 8.00	$26.00		
November	19.00	8.00	27.00		
December	20.00	10.00	30.00		
			$83.00	$67.13	$150.13
Tahoe City					
October	$18.00	$ 8.00	$26.00		
November	19.00	8.00	27.00		
December	20.00	10.00	30.00		
			$83.00	$84.79	$167.79
South Lake Tahoe					
October	$15.00	$ 8.00	$23.00		
November	20.00	8.00	28.00		
December	22.00	10.00	32.00		
			$83.00	$70.14	$153.14
Alpine					
October	$ 3.00	$ 8.00	$11.00		
November	4.00	8.00	12.00		
December	5.00	10.00	13.00		
			$36.00	$26.00	$ 62.00
TOTAL MODEL COSTS					$533.06

ALTERNATIVE DELIVERY METHOD #1

UNITED PARCEL SERVICE

COSTS

One alternative method for delivery of materials among members of the MVLS delivery network is the use of a common carrier. UPS is the common carrier which could make deliveries to and from all points in the network. The following cost breakdown for UPS separates intrasystem and branch shipments. It also separates correspondence, which could be carried by U.S. Mail (UPS could not efficiently handle small envelope size deliveries at a cost which compares favorably with the U.S. Postal Service).

INTRASYSTEM TRANSPORTATION COSTS FOR UPS NETWORK:

A. ILL Deliveries, returns, supplies, equipment, misdirected, miscellaneous

100,279 items projected for delivery in FY 1977/78 and in FY 1978/79* (see Page 13)

100,279 ÷ 4 (average number of items per package) = 25,070 packages

Average package weight = 2.8 lbs. (see Page 20)

Package cost = $0.89 (based on November, 1977, UPS rate charts, 3 lb. rate, Zone 2)

Transportation charges = 25,070 x .89 = $22,312

+ service charge (20 locations x $2 per week x 52 weeks) = $ 2,080

B. Film circuit deliveries

6,857 items projected for FY 1977/78 and FY 1978/79* (see Page 13)

6,857 x $0.539 (based on Tahoe Basin UPS model, 127 films shipped at a cost of $68.48 = $.539 per item) = $ 3,696

C. Correspondence, requests, status reports

20,998 items projected for FY 1977/78 and FY 1978/79* (see Page 13)

20,998 x $.15 (assuming U.S. Postal Service cost increase) = $ 3,150

TOTAL INTRASYSTEM TRANSPORTATION COSTS = $31,238

Cost per item = 24.4¢ (128,134 items for $31,238)

*Assumption made that FY 1978/79 item count will be the same as FY 1977/78 which was derived form the sample taken for this study.

BRANCH TRANSPORTATION COSTS FOR UPS NETWORK:

300,407 branch items projected for delivery in FY 1977/78 and in FY 1978/79 (see Page 13)

300,407 ÷ 20 (average number of items per package, based on actual experience at Sacramento Central and tests at MVLS) = 15,020 packages

Average package weight = 25 lbs. (based on MVIC and SPL experience)

Package cost - $2.30 (based on November, 1977, UPS rate charts, 25 lb. weight, Zone 2)

Transportation charges = 15,020 x $2.30 =	$34,546
+ service charge (25 locations x $2 per week x 52 weeks)	2,600
TOTAL UPS BRANCH TRANSPORTATION COSTS:	$37,146

Cost per item = 12.4¢ (300,407 items at $37,146)

INTRASYSTEM AND BRANCH TRANSPORTATION COSTS FOR UPS NETWORK:

Total costs for the delivery network via United Parcel Service for interlibrary loan, related shipments and branch deliveries and U.S. Mail for correspondence would be:

Intrasystem ILL and films	(107,136 items)	at	$28,080
Correspondence	(20,998 items)	at	3,150
Branch shipments	(300,407 items)	at	37,146
TOTALS	428,541 items	at	$68,384

Cost per item = 16¢

The above $68,384 figure is for transportation and pickup service charges only. Use of a common carrier means staff costs for packaging time as well as packing materials costs. These time and materials costs are above and beyond the costs incurred by a delivery network using a dedicated van. It is relatively easy to determine packaging materials costs, but staff costs are difficult to determine. In practice, these costs would be absorbed by the shipping location, and would depend upon the salary of the shipping clerk. In theory, the following computations add the time and material costs (the handling costs) to the per package transportation costs of a UPS delivery network.

INTRASYSTEM HANDLING COSTS FOR UPS NETWORK:

A. Salary

Based on clerical wage of $4.327/hour

25,070 ILL packages (see Page 22) + 1,714 film packages (6,857 items shipped in film boxes which hold 4 films each) = 26,784 packages

5 min. packing time/package x 26,784 = 133,920 min.

133,920 ÷ 60 = 2,232 hours x $4.327 = $ 9,658

B. Materials

#6 jiffy bags ($.23 each) used 3 times
25,070 ÷ 3 = 8,357 x .23 = $1,922

Film boxes (15/circuit member x 11 members) = 165 boxes) $7.50/box x 165 = 1,238

Bags and boxes 3,160

TOTAL INTRASYSTEM HANDLING COSTS = $12,818

TOTAL INTRASYSTEM TRANSPORTATION COSTS (from Page 22) 31,238

TOTAL COSTS FOR UPS INTRASYSTEM NETWORK $44,056

Cost per item = 34.4¢ (128,134 items for $44,056)

BRANCH HANDLING COSTS FOR UPS NETWORK:

A. Salary

Based on clerical wage of $4.327/hour

15,020 packages (see Page 23) x 10 min. packaging time/pkg. = 150,200 minutes
150,200 ÷ 60 = 2,503 hours x $4.327 = $10,830

B. Materials

11" x 16" x 9" boxes used 6 times, cost $.44 ea.
15,020 packages ÷ 6 = 2,503 boxes needed x $.44 = 1,101

TOTAL BRANCH HANDLING COSTS $11,931

TOTAL BRANCH TRANSPORTATION COSTS (see Page 23) 37,146

TOTAL COSTS FOR UPS BRANCH NETWORK $49,077

Cost per item = 16.3¢ (300,407 items for $49,077)

TOTAL UPS NETWORK:

A total UPS network would carry the same volume currently projected for the FY 1978/79 MVLS delivery network (428,541 items). Costs for

such a system would include intrasystem handling and transportation charge, and branch handling and transportation charges as determined in the past two pages. To summarize:

INTRASYSTEM and CORRESPONDENCE (128,134 items)

UPS and U.S. Mail transportation costs	$31,238
UPS handling costs	12,818

BRANCH (300,407 items)

UPS transportation costs	37,146
UPS handling costs	11,931
	$93,133

Cost per item = 21.7¢ (428,541 items for $93,133)

A chart summarizing the UPS Alternative Delivery Method Costs and the dedicated van delivery costs is in the summary of this report, Page 43.

OTHER DELIVERY ALTERNATIVES

In order for a delivery methodology to be considered for use for Mountain-Valley Library System, it has to meet certain criteria:

1. It must have door-to-door pickup and delivery. Member libraries do not have the staff or equipment to make daily trips to a transfer point.

2. It must touch all cities in the MVLS region where member libraries are located.

3. It must be timely. While no absolute time limits have been established, a system which offers same or next day delivery is considered excellent; two to four days is rated as good; five days, acceptable only in some circumstances; and over five days is unacceptable for most shipments.

4. It must be reliable, both in terms of time between delivery points, and in terms of shipment integrity (low loss rate).

5. It must meet the above criteria at a cost which is "reasonable", that is, comparable to other methods available, and within MVLS budget limits.

The available delivery methods were weighed against these criteria. The currently used method, dedicated van service, is used because it fits all five factors as demonstrated by nine years of experience with the MVLS van network. A UPS network (supplemented by U.S. Mail for correspondence) also meets all criteria as demonstrated in the MVLS UPS Delivery Model analyzed as to costs as Alternative Delivery Method # 1 (pages 18-25 of this report). Costs projections were not made for the following delivery alternatives as they did not fill the basic established criteria.

Alternative Delivery Method #2 - Greyhound Bus Lines

Greyhound Bus and its competitor bus lines do not offer door-to-door package pickup and delivery.

Alternative Delivery Method #3 - United States Postal Service

U.S. Mail - Library Rate is highly unreliable in this area. When it works well, this system could be considered as a delivery alternative, but because of frequent slow and lost deliveries, it cannot be considered as a viable alternative.

Alternative Delivery Method #4 - Contract carrier

There is no established contract carrier in the region which touches all or even most locations in the System.

Alternative Delivery Method #5 - "Piggybacking" established dedicated delivery routes

Several community college districts, school districts, other government agencies have delivery vans which criss-cross the area served by the MVLS vans. There is no one service which covers the entire area, and none that would offer door-to-door service. It is possible to piggyback onto some of these networks, such as is currently done with the Placer Instructional Materials Center (which delivers to branch libraries in the North Tahoe region), but it is recommended that this be kept to a minimum. Every time a transfer takes place, there is opportunity for misplacing or misrouting a shipment. A system with too many touchpoints would bring utter confusion to the process of tracking a shipment.

It is recommended that certain of these possible "piggyback" ventures be looked into, such as using the Los Rios Community College delivery system for delivery to the Sacramento area community college libraries.

Alternative Delivery Method #6 - Combinations

What currently exists as the MVLS delivery network is actually a combination of a dedicated van service for most shipments, United Parcel delivery to Mono County and among Tahoe branches, U.S. Mail for some correspondence, and various internal member library branch delivery methods. It is strongly recommended that any such combinations be kept to a minimum because of the problem of transfer points as previously discussed. Any time a new element is added to the methods in use, more time has to go into the preparation of materials for shipment as the shipper has to decide which method to use. An octopus system of various delivery combinations could cause total system failure, particularly if the delivery method to be used varied as to the day of the week. Such a system would not meet the established criteria for timeliness and reliability.

Alterations in the network delivery system in use at any time should weigh possible time loss, tracking capabilities, shipping preparation time, and transfer point access, against any cost savings.

CHAPTER VI

BRANCH DELIVERY COSTS

One of the benefits of doing a delivery sample tally such as the one MVLS conducted for this study is that the data is useful for many types of administrative and policy decisions. One important analysis that this data has provided MVLS regards branch shipments. If branch shipments become a local funding responsibility, then their costs need to be broken out from the total network costs. The following section explores several methodologies of determining this cost.

Contents:

Delivery costs for branches
Delivery costs with a change in branch shipment volume

DELIVERY COSTS FOR BRANCHES

The MVLS delivery van service has been paid for from LSCA funds as well as member sharing funds in the past. Now that California has a new library services act, intrasystem delivery will become a part of our CLSA grant. Unfortunately, the delivery component of the CLSA has no matching appropriations yet. The California State Library has indicated that until CLSA has delivery money, intrasystem delivery can be funded under LSCA. One restriction is that LSCA will fund intrasystem deliveries only, no branch deliveries.

Since MVLS has just finished a delivery sample tally which does permit projections of items carried on the vans by their type, we can make a distinction between branch and intrasystem deliveries. For FY 77/78, we have projected an intrasystem delivery volume of 128,134 items and a branch delivery volume of 300,407 items. (See Page 13.) The branch volume is distributed as follows:

Auburn-Placer	43,108	(excluding Tahoe branches)
El Dorado	31,573	
Nevada	25,445	
Sacramento Public	183,759	(between HQ and Central only)
Sutter	7,510	
Yolo	9,012	
	300,407	branch items projected for FY 1977/78 and 1978/79
	428,541	total items carried on van in FY 1977/78 and 1978/79

METHODOLOGY 1:

The conclusion from the above statistics is that branch deliveries make up 70.1% of the volume carried on the vans. If this proportion was directly applied to the costs of van service, then branch deliveries would cost an estimated $32,807 for FY 78/79 (70.1% of the $46,800 costs projected for FY 1978/79; see Page 15).

There are some discrepancies in this costing methodology. For one, the delivery van has a certain cost level it would maintain even if it carried no branch shipments. Most of the mileage put on the van is accounted for by the long trips between member library headquarters. The stops at the branches add very little extra mileage. They do add a certain amount of staff time as each additional stop takes more driver time.

METHODOLOGY 2:

If MVLS wishes to maintain a dedicated van service which makes daily stops at member library headquarters, it would assume a basic cost level. If this service is extended to carry branch shipments, the additional cost is merely an add-on to the basic or "sunk" costs. The following computations explore this cost breakout.

Assumptions:

1. MVLS will maintain a dedicated van delivery service which makes daily stops at most public library members' headquarters.
2. The van will stop 3 times a wekk at Lincoln Public Library.
3. Daily delivery to Alpine County Library will be made via UPS.
4. No branch shipments or IMC shipments will be carried.
5. Daily delivery for Sacramento City College and Cosumnes River College will be made via the Los Rios College district van. (MVLS van would tie into this service at the district office).
6. CSUS, UCD, Sierra College and Yuba College would receive daily delivery.
7. The vans would carry an estimated 126,665 items (128,134 total projected items minus 863 items for Alpine, 230 for Stateline and 376 for the IMC; see Page 13).
8. Such a network would take one full-time van and one half-time van.

Costs:

Salaries		$21,800
One full-time driver with benefits	$14,300	
One part-time driver, no benefits	6,000	
One relief driver	1,500	
Operating expenses		6,980
Fuel, oil	$ 3,525	
Maintenance	1,875	
Insurance	800	
Tires ($65 ea., 3 sets)	780	
Equipment		7,313
One van, $9,750, 2 years life	$ 4,875	
One van, $9,750, 4 years life	2,438	
Contract Services		846
UPS delivery to Alpine Co. Library (See Page 45 for calculation of this figure)	$ 846	
TOTAL		$36,939

Cost per item = 29.2¢ $36,939/126,665 items

Costs for entire dedicated van delivery network (intrasystem and branches from Page 15)	=	$46,800
Costs for intrasystem dedicated van delivery network (above)	=	(36,939)
Difference		$ 9,861

The above $9,861 difference is the add-on cost for making branch deliveries. It is the additional cost necessary to run a van service which makes branch deliveries, above the cost for a delivery service making only intrasystem delivery stops, that is stopping only at headquarters libraries. If this add-on cost was divided among the libraries receiving branch delivery service, by the proportion of their branch volume the cost would be distributed as follows:

	FY 78/79 branch volume carried on vans	% of total branch volume		FY 78/79 cost
Auburn-Placer	43,108	14.3%	=	$1,410
El Dorado	31,573	10.5%	=	1,035
Nevada	25,445	8.5%	=	838
Sacramento Public	183,759	61.2%	=	6,035
Sutter	7,510	2.5%	=	247
Yolo	9,012	3.0%	=	296
Totals	300,407	100.0%		$9,861

Cost per item - 3.3¢ $9,861/300,407 items

METHODOLOGY 3:

Various equations could be used to come up with other ways to divide the add-on costs for branch shipments. One such formula would include the number of branch stops made for each library, since not only volume but also number of deliveries could be used to determine "service".

	Stops Per Week	% of total stops	% of total volume	Average %	Cost
Auburn-Placer	9	26.5%	14.3%	20.4%	$2,012
El Dorado	5	14.6%	10.5%	12.6%	1,242
Nevada	9	26.5%	8.5%	17.5%	1,726
Sacramento	4	11.8%	61.2%	36.5%	3,599
Sutter	3	8.8%	2.5%	5.6%	552
Yolo	4	11.8%	3.0%	7.4%	730
Total	34	100.0%	100.0%	100.0%	$9,861

Cost per item for each library:

Auburn-Placer	$2,012/43,108 items	=	4.7¢
El Dorado	$1,242/31,553 items	=	3.9¢
Nevada	$1,726/25,445 items	=	6.8¢
Sacramento Public	$3,599/183,759 items	=	2.0¢
Sutter	$ 552/7,510 items	=	7.3¢
Yolo	$ 730/9,012 items	=	8.1¢
	Average cost per item	=	5.5¢

DELIVERY COSTS WITH A CHANGE IN BRANCH SHIPMENT VOLUME

All of the analyses in this report are based on the assumption that the volume of materials to be delivered will not change. There are several events in the future which would change the entire validity of the report. One is the merging of Sacramento Public Library's HQ and Central branch. When this event occurs, there would be no need for MVLS vans to deliver branch shipments for SPL, thus changing this report's cost/volume projection. As the new building is at least five years in the future, we've decided to ignore the event, since in five years' time, the cost estimates of this study would be totally inadequate anyway.

A more likely occurrence would be that SPL would decide to use their own van service for the HQ to Central delivery. This might occur if it were determined to shift the cost for branch deliveries back to the local jurisdictions. For most libraries, the 3.3¢ average per item delivery cost or the 5.5¢ cost per item, depending on the method used to determine the cost, is the cheapest method of branch delivery. SPL is the exception since it could extend its current dedicated van to make all of its branch deliveries without much added cost.

It is important to note how the SPL branch delivery volume affects the cost per item estimation for the entire MVLS delivery network. If the 183,759 yearly branch item projection for SPL were eliminated from the total of 428,541 items for the network, the resultant 244,782 items would be carried on a van service which would still cost the same as the current network. That is, the $46,800 service for all intra-system and branch deliveries would not experience any cost savings with the elimination of 4 stops per week for SPL. (This fixed cost for running the van service which would not change even with the elimination of branch delivery for Sacramento Public Library demonstrates the point made on Page 1 of this report that a change in volume carried on the van may not mean a change in actual costs, but would mean a change in the cost per item figure.) The cost per item changes would be as follows:

Total Delivery Network (intrasystem and branch)
- with SPL branch delivery — $46,800/428,541 items = 10.9¢ per item
- without SPL branch delivery — $46,800/244,782 items = 19.1¢ per item

UPS Alternative Network (transportation only) - see Page 23
- with SPL branch delivery — $68,384/428,541 items = 16¢ per item
- without SPL branch delivery
  - excludes: 183,759 items = 9,188 packages
    - 9,188 x $2.30 UPS package cost = $21,132
    - + service charge (1 location x 2 $2/week x 52 weeks) = 104
    - $21,236

$68,384 - $21,236 = $47,148 cost difference
428,541 - 183,759 = 244,782 volume difference

$47,148/244,782 items = 19.3¢ per item

UPS Alternative Network (transportation + handling cost) see Page 25

with SPL branch delivery $93,133/428,541 items = 21.7¢ per item

without SPL branch delivery

excludes transportation costs $21,236

handling costs (see page 24)

9,188 packages x 10 min. packing time/pkg. = 91,880 min. ÷ 60 = 1,531 hours

1,531 hours x $4.327 = 6,625

materials (see page 24)

9,188 packages ÷ 6 = 1,531 boxes x $.44 = 674

$28,535

Total cost $93,133 minus $28,535 SPL costs ($21,236 for transportation, $6,625 for packaging time, $674 for packing materials) = $64,598

$64,598/244,782 items = 26.4¢ per item

CHAPTER VII

TRI-SYSTEM DELIVERY NETWORK

Mountain-Valley Library System is actually operating two distinct, separately funded delivery networks. The first is the network among the MVLS member libraries and the second is the Tri-System Delivery network which is an inter-tie system between MVLS, North Bay Cooperative Library System, and North State Cooperative Library System, with stops at U.C. Davis, and the California State Library. This Tri-System Network has been in operation since January, 1977, with one full-time driver and one dedicated van. Since MVLS is studying its own network, it was decided to analyze the Tri-System Delivery Network at the same time.

All items carried on the Tri-System van are tallied by the van driver as to the location the item is sent to. No attempt is made to categorize the shipments as to their type (ILL, returns, etc.) except two general categories of books and others. Monthly tallies have been kept since the start of the van service.

The Tri-System van route is mostly on high speed highways, covering 267 miles daily with stops in Oroville, Sacramento, Davis and Vallejo.

Contents:

Tri-System Tally, August, 1977
Tri-System Tally, September, 1977
Tri-System Yearly Item Count
Tri-System Costs
Tri-System Delivery Costs Comparisons

Tri-System Van Tally - Items Received
August, 1977

Date	MVLS Books	MVLS Other	NBCLS Books	NBCLS Other	NSCLS Books	NSCLS Other	CSL Books	CSL Other	UCD Books	UCD Other	TOTAL
1	20	16	17	12	148	16	19	3	1	0	252
2	16	5	29	10	121	33	26	1	4	3	248
3	7	8	23	19	92	8	12	1	2	0	172
4	6	8	27	11	86	8	13	0	3	4	166
5	19	6	12	10	95	8	16	2	1	1	170
8	15	9	33	7	62	6	28	0	2	2	164
9	14	12	24	12	53	13	25	1	4	1	159
10	18	13	8	4	112	4	11	1	6	0	177
11	9	7	25	6	84	8	39	0	2	4	184
12	9	15	19	18	92	10	12	6	1	1	183
15	25	6	26	5	53	17	24	2	1	3	162
16	14	10	28	10	140	3	28	2	1	1	237
17	6	9	53	11	94	10	9	2	3	3	200
18	8	8	28	4	103	4	14	3	5	1	178
19	9	12	26	6	153	3	33	5	3	1	251
22	32	11	23	20	73	13	30	0	6	1	209
23	4	7	33	7	76	4	10	4	6	1	152
24	16	7	23	5	77	18	28	3	2	2	181
25	22	10	44	9	96	9	32	4	7	2	235
26	5	7	24	12	41	9	16	5	2	5	126
29	13	9	25	13	59	7	18	0	4	0	148
30	13	6	18	9	72	20	14	3	6	3	164
31	17	10	23	4	115	17	5	0	2	1	194
Totals	317	211	591	224	2,097	248	462	48	74	40	4,312
	528		815		2,345		510		114		
% of all items carried	12%		19%		54%		12%		3%		

Books: Books, magazines, microfilm, documents, gifts.
Others: Correspondence, equipment, film, maps.

Tri-System Van Tally - Items Received
September, 1977

Date	MVLS		NBCLS		NSGLS		CSL		UCD		TOTAL
	Books	Other	Books	Other	Books	Other	Books	Other	Books	Other	
1	10	6	30	10	95	4	13	1	2	1	172
2	7	14	21	9	145	7	14	2	1	2	222
6	16	7	44	5	146	4	24	0	11	0	257
7	13	4	13	6	69	9	34	0	9	0	157
8	16	5	21	11	76	11	18	1	4	2	165
12	18	13	20	16	172	8	13	4	3	0	267
13	28	9	17	11	49	20	43	2	6	2	187
14	21	11	26	7	76	6	23	2	16	2	190
15	9	5	30	9	49	6	16	1	1	2	128
16	22	7	29	13	96	16	12	1	1	2	199
19	28	11	28	7	105	12	24	3	4	0	222
20	13	5	21	6	55	2	26	4	10	1	143
21	9	9	24	16	40	7	11	2	4	0	122
22	18	5	20	10	107	8	10	1	8	1	188
*23	18	9	27	10	91	10	20	2	6	1	194
26	20	13	40	13	169	22	41	3	9	1	331
27	28	18	42	5	85	21	17	5	1	2	224
28	14	9	13	10	55	8	14	1	7	1	132
29	35	10	40	7	50	9	20	4	2	1	178
Totals	343	170	506	181	1730	190	393	39	105	21	3,678
	513		687		1,920		432		126		
% of all items carried	14%		19%		52%		12%		3%		

Books: Books, magazines, microfilm, documents, gifts.
Other: Correspondence, equipment, film, maps.

*No tally kept - relief driver (filled in averages).

Tri-System 1977 Item Count

MONTH	BOOKS: Inter-Library Loan	BOOKS: Processing Center Shipment	TOTAL BOOKS	OTHER	GRAND TOTAL
January	1,677	2,101	3,778	641	4,419
February	1,105	1,325	2,430	513	2,943
March	1,237	2,158	3,395	629	4,024
April	1,826	2,161	3,987	725	4,712
May	1,654	1,858	3,512	767	4,279
June	1,876	1,482	3,358	649	4,007
July	1,912	1,881	3,793	634	4,427
August	2,155	1,386	3,541	771	4,312
September	1,898	1,179	3,077	601	3,678
9 month total	15,340	15,531	30,871	5,930	36,801
$\bar{X}$ (mean)	1,704	1,726	3,430	659	4,089
Jan.-Dec. 1977 Projections ($\bar{X}$ x 12)	20,448	20,712	41,160	7,908	49,068*

*No weighting factor has adjusted this projection as there is no historical data upon which to compute seasonal trends.

Tri-System Delivery Van Costs

	Actual costs January-June, 1977	Projected cost for van delivery FY 1978/79
Salary + benefits		
Driver	$4,078	$10,423
Relief Driver		639
Total Salary/benefits	$4,078	$11,062
Operating expenses		
Fuel, oil		$ 4,550
Maintenance		1,500
Insurance		200
Tires		455
Total Operating Expenses	$2,478	$ 6,705
Equipment (Vehicle cost)		
$8,700 actual cost for vehicle (January, 1977, with modifications) plus one $1,500 engine rebuild at 2 years (133,000 miles) = total cost of $10,200 pro-rated for 4 years (275,000 miles)	$1,275	$ 2,550
Total Equipment (Vehicle cost)	$1,275	$ 2,550
GRAND TOTALS	$7,831	$20,317

Tri-System van delivery costs per item = 41.4¢ 49,068 items for $20,317.

Assumption 1: The projection for FY 78/79 delivery total is assumed to equal the projected total of items delivered in January-December, 1977.

Assumption 2: No delivery or pickup points will be added to or deleted from the delivery schedule.

TRI-SYSTEM DELIVERY COST COMPARISONS

The purpose of the Tri-System delivery van is to provide a standardized, efficient methodology for delivery of inter-system loans and reciprocal borrowing returns. The LSCA demonstration funds currently supporting this service are a tangible recognition of the importance of such intersystem cooperation. Obviously, a delivery service which meets the criteria of speed, and reliability at the least expense would be the preferred transportation format.

The current method of Tri-System delivery is by dedicated van. This provides a reliable, speedy method of transportation. The van currently makes deliveries to five locations, one each for each system, one at the State Library, and one at U.C. Davis which is the largest library in the area and serves as backup to all three systems. Because the van makes stops at these locations, it is used to carry items other than intersystem loans, returns and correspondence. Specifically, the van is used to transport processed books from the NBCLS Processing Center to the NSCLS distribution point. In fact, 42.2% (20,712 total processing center items/49,068 total items) of all materials carried on the Tri-System van are Processing Center shipments.

As LSCA moneys will be available for delivery of intra- and inter-system deliveries only in the near future, it behooves us to separate the costs of materials carried on the Tri-System van which are loan and intersystem materials as opposed to Processing Center materials. There are several ways this could be accomplished.

First, the most obvious way would be to figure Processing Center shipment costs relative to their percentage of total shipments. At 42.2%, this would mean $8,574 per year, or 41.4¢ per item (based on FY 78/79 total cost projections of $20,317). This methodology may be statistically correct, but may not be equitable. The van is making a daily run between Vallejo and Oroville anyway, and the Processing Center shipments are simply add-ons. The increased load carried because of Processing Center shipments does put some increase on gasoline consumption and wear and tear on the driver and vehicle, but the proportion of this cost increase would be very difficult to determine. There are costs which the Tri-System van would have to bear as "sunk" costs as long as it is continuing on its current route; the costs for the add-ons are hardly traceable.

A second methodology of determining the cost breakdown would be to figure the costs for the Tri-System delivery of only intersystem shipments. The lowest acceptable figure (comparing several delivery methods) would then be compared to the cost of van delivery for both intersystem and Processing Center materials. This resultant figure would be the cost of Processing Center shipments. The following computations explore this methodology.

Item projection for 1977 Tri-System <u>intersystem</u> item shipments = 28,356
(excludes Processing Center shipments from total van shipment)

Projected cost of Tri-System van for FY 78/79 = $20,317

Cost per item = $20,317/28,356 = 71.6¢

This 71.6¢ per item cost is quite high as compared to other delivery methods. One such possible method would be the use of UPS. As demonstrated in the MVLS-UPS delivery test model (see Page 18), United Parcel Service offers reliable, quick delivery service. Between the five locations of the Tri-System delivery network, next day UPS delivery is routine. The costs for such service would be:

28,356 items ÷ 4 item/package average (based on experience with use of #6 jiffy bags in MVLS-UPS test model = 7,089 packages
Average package weight = 2.8 lbs. (See page 20)
Package cost = $.89 (based on UPS weight and zone charts)

Delivery cost = 7,089 x $.89 =	$ 6,309
+ service charge ($2 per week x 52 weeks x 5 locations)	520
	$ 6,829
Packing materials (#6 jiffy bags, used 3 times, cost @ 23¢)	540
	$ 7,369

Cost per item = $7,369/28,356 items = 26¢

This 26¢ cost is for transportation and supply charges only and does not include packaging labor costs. One additional cost of using UPS or any common carrier is that accrued by packaging the materials. This takes more staff time than the preparation for shipment by dedicated van in which the clerk need only slip a routing slip in the book after completing the interlibrary circulation paperwork. Estimating the cost of the additional labor needed to package and label a shipment for UPS is difficult since actual costs depend upon the salary of the individual doing the packaging, their work speed, accessibility of packing supplies, etc. The following is only a theoretical estimate.

Assumption I: Clerical staffer doing packaging is paid $9,000 per year including benefits (4.327/hr.)
Assumption II: It takes 5 minutes to package the ILL material and prepare shipping form for each package.
Assumption III: 7,089 packages are prepared for shipping per year (4 items per package, or 28,356 items).

Costs:
7,089 x 5 min. = 35,445 minutes or 590.75 hours
590.75 x $4.327 = $2,556 Staff cost for packaging.

The above staff cost figure would be in actuality dispersed among the five switching centers of the Tri-System delivery network, but, to get a comparable figure as to the total "costs" of using UPS for intersystem delivery, this $2,556 staff cost will be added to the transportation or package costs. The total cost of using a common carrier for Tri-System delivery would be:

Transportation cost	$7,369
Handling Cost	2,556
	$9,925

Cost per item = $9,925/28,356 items = 35¢

The $9,925 total for UPS delivery service is quite a bit less than the $20,317 for a dedicated van service ($20,317 - $9,925 = $10,392). There are some immeasurable reasons which some Tri-System members have expressed as reason for preferring a dedicated van to use of a common carrier. These reasons have to do with the value of publicity obtained from the van which is attractively painted with the Tri-System logo. It also has to do with the cooperative attitudes of all the Tri-System librarians as it is reinforced through pride in the ownership of the delivery van. It also has to do with the availability of staff time to prepare shipments. Although staff costs were included in the cost of a UPS delivery system, in actuality these would not be coverable as they are diffused among at least five staffs. In practice, the staff costs would most likely be assumed by the shipping libraries even before the item reached one of the five switching centers.

For the delivery of intersystem loans, returns and correspondence, there is a 36.6¢ per item cost difference between use of a common carrier and a dedicated van (71.6¢ for dedicated van - 35¢ for UPS = 36.6¢). By sharing the use of the dedicated van with the Processing Center the cost difference is reduced to 6.4¢ per item.

Use of dedicated van for shipping 49,068 items = $20,317 or	41.4¢
Use of common carrier for shipping 28,356 intersystem items = $9,925 or	34.8¢
	6.4¢

As the continued use of the Tri-System van is an expressed desire of both the Tri-System libraries and of the Processing Center, this 6.4¢ per item cost difference would be a price for the add-on delivery service offered to the North Bay Cooperative Library System Processing Center.

Cost breakdowns for FY 78/79 would be:

Total cost of the van	$20,317
Processing Center share:	
6.4¢ x 20,712 item projected volume	(1,326)
Tri-System share =	$18,991

Cost per item = $18,991/28,356 = 67¢

It could be equally argued that since the staff costs are assumed by the shipping library, the cost distribution would more properly be a comparison between transportation and supply costs only. This means a comparison between 71.6¢ for the dedicated van and 26¢ for the common carrier. This means a cost difference of 45.6¢ per item if a dedicated van is in service for the Tri-System Delivery System. By sharing with the Processing Center, this cost difference is reduced to 15.4¢ (41.4¢ per item for dedicated van for shipping 49,068 items - 26¢ per item for common carrier shipping 28,356 items = 15.4¢). Calculating cost breakout by this rationale, totals would be as follows for FY 78/79:

Cost of dedicated van service	$20,317
Processing Center share (15.4¢ x 20,712 items)	(3,190)
Tri-System share (28,356 items)	$17,127

Cost per item = $17,127/28,356 = 60.4¢

CHAPTER VIII

SUMMARY AND RECOMMENDATIONS

As the purpose of this study is to provide background information for future decision making, this report is consigned to the MVLS Executive Council for their policy and administrative decision process. It is recommended that the MVLS Budget and Long Range Planning Committee use this report in preparing FY 1979/80 plans. Several specific recommendations are included in this chapter.

Contents:

Per item cost comparisons
Recommendations

PER ITEM COST COMPARISONS

MVLS Delivery Network

I. Current MVLS van system for intrasystem and branch deliveries, FY 78/79 (Page 15)

428,541 item volume, $46,800 total costs = 10.9¢/item

II. UPS system for intrasystem and branch deliveries, FY 78/79

A. Transportation (per package fee and pick-up charge) (Page 25)

428,541 item volume, $68,384 = 16¢/item

B. Transportation + Handling (staff and material costs) (Page 23)

428,541 item volume, $93,133 = 21.7¢/item

III. Dedicated van system for intrasystem deliveries, FY 78/79 (no branch shipments) (Page 30)

126,665 item volume, $36,939 = 29.2¢/item

IV. UPS system for intrasystem deliveries, FY 78/79

A. Transportation (per package fee and pick-up charge) (Page 22)

128,134 item volume, $31,238 = 24.4¢/item

B. Transportation + Handling (staff and material costs) (Page 24)

128,134 item volume, $44,056 = 34.4¢/item

Tri-System Delivery Network

I. Current Tri-System van network for intersystem and Processing Center Deliveries, FY 78/79 (Page 38)

49,068 item volume, $20,317 = 41.4¢/item

II. Tri-System van service for intersystem deliveries only (Page 39)

28,356 item volume, $20,317 = 71.6¢/item

III. UPS system for Tri-System intersystem deliveries only

A. Transportation (per package fee, pickup charge and supplies (Page 40)

28,356 item volume, $7,369 = 26¢/item

B. Transportation + Handling (staff time) (Page 40)

28,356 item volume, $9,925 = 35¢/item

RECOMMENDATIONS

I. Continuation of UPS Model

The 1977/78 MVLS budget allotted $1,216 for the UPS test model. As reported on Page 21 of this report, the operation of the model from May thru December will cost $533.06. It is recommended that the model be continued from January 1 thru June 30.

The librarians using the UPS service are in favor of keeping it. It provides the only viable alternative for delivery of film circuit packets for the Tahoe Basin libraries. Without UPS delivery service, the Tahoe libraries could not participate in the MVLS film circuit. Mono County Library is favorably impressed with the reliable, fast delivery of their ILL materials via UPS, and would like to have it continued.

It is therefore recommended that UPS delivery service be available from January 1 thru June 30 for Tahoe City Library, Lake Valley Library and Alpine County Library for shipment of films and for Mono County Library receipt of interlibrary loan materials from Mountain-Valley Information Center. Estimated cost for this 6-month continuance is $586 ($533 May-December cost + 10% increase allowance.)

May to December total budget for UPS model	$1,216
Actual May to December expenditures	(533)
Carryover	$ 683
Projected costs January-June UPS model continuance	(586)
Carryover at end of fiscal year	$ 97

II. Continuation of dedicated van service for MVLS delivery

By comparing the costs of various methods of delivering material in the MVLS region, it appears that the dedicated van method is not only the cheapest (see Page 43), but also the easiest system. As the drivers need only a routing slip on each piece of material for shipment, there is no need for precious staff time to be spent on packaging shipments as would be necessary for most other delivery methods. Since the system is closed, that is only MVLS materials are transported on the van, the mis-shipping error rate is minimal (.4% of total shipment; see Page 9). As most of the materials are carried directly from sending library to receiving location, there is little error at transfer points.

There are two modifications of the current van system which are recommended for implementation:

A. Elimination of delivery by van to Alpine County Library. Alpine County Library sends a projected volume of 863 items per year (Page 13) and receives a projected volume of 1,225 items (the items sent to Alpine during the August-September sample, see Page 8, x 6 + 16% weighting factor = 1,225). The trip to Alpine is a half-day trip over mountainous roads, some 96 miles east of Placerville (see mileage chart in Appendix). As this trip is made only once a week,

Alpine County Library is receiving delayed delivery of materials. A United Parcel Service delivery schedule could easily be set up for Alpine. All material going to Alpine would come to MVLS Headquarters via the MVLS van, and there be packaged and sent out daily via UPS. (Note that 50% of the material being shipped to Alpine comes directly from the MVLS Headquarters, 21% from the Auburn-Placer Area Library, and 29% from all other MVLS member libraries.) Alpine County Library would return material to the owning library directly via UPS. This schedule would offer better delivery service for Alpine and free time for the MVLS van to schedule every day service to other libraries (Nevada County) who currently do not get Friday delivery. It also means that a van driver would not have to make the trip up over the Sierras every week, a taxing experience on both the driver and the vehicle.

The cost for this limited use of UPS would be as follows:

Volume:

Sent to Alpine	1,225
Sent by Alpine	863
Total	2,088

Costs:

Pickup charge at Alpine: ($2/week x 52 weeks)	=	$104
Pickup charge at MVIC: (absorbed in the Mono Co. UPS proposal)	=	0

Material costs:

2,088 items ÷ 3.28 items/package* = 636 packages		
636 jiffy bags + 3 times use x $.23 ea.	=	49
miscellaneous tape, staples	=	10

UPS package cost

32.7¢/item based on the per item cost as determined by the UPS-Mono County UPS test model, see Page 20		
2,088 x 32.7¢	=	683
TOTAL COST		$846/year

*The lower figure per package (3.28 instead of 4) is used in this case because it is anticipated that there will be many low volume days. The advantage of using UPS daily instead of one weekly van trip is that quicker service will result, even if some very small packages are sent out daily instead of waiting for a week's worth of delivery items to be sent out at one time.

By eliminating the Alpine County van run, several other stops would be eliminated; Stateline, Nevada, Lake Valley Branch, Woodfords School. The Stateline, Nevada, stop is an extremely low volume delivery stop, of between-branch deliveries from Lake Valley which could be taken over by the member staffs, and of materials from MVLS Headquarters to the Sierra Tahoe Regional Resource Library which could be taken over by mail or UPS. The Lake Valley Branch shipments could be carried by the El Dorado County van which makes a daily trip from Placerville to South Lake Tahoe (transfer of material to this van will be easier when the El Dorado County Library moves to the County Administrative Center in Summer, 1978). The Woodfords School stop is another low volume stop made for the Placer-El Dorado IMC's benefit. It could be taken over by the IMC themselves.

B. It is recommended that one daily delivery stop be made at the offices for the Los Rios Community College District for transfer of material to Cosumnes River College and Sacramento City College. Currently SCC and CRC get delivery three times per week on the MVLS van. They would get daily delivery service if the MVLS van made a daily drop and pick-up at the District Office which already has its own daily van run out to these two campuses.

III. Delivery to Mono County Library via UPS

In the past, Mono County Library received delivery via U.S. Mail, Library Rate. Bridgeport is too far away from other MVLS libraries to consider van delivery, even once a week. Since some sort of contract or common carrier must be used, it is recommended that the quickest, most reliable method be implemented. As show in the MVLS-UPS test model (see Pages 18-21), United Parcel Service has been demonstrated as preferable to U.S. Mail.Mono County would continue to use U.S. Mail to return packages to MVLS Headquarters or the owning library as there is a reliable mail route coming from Bridgeport to Sacramento (but not the reverse), and there is not the same time restraint on returns as there is on sending interlibrary loans.

The cost of such a service would be:

Volume: sample period total volume = 105
(56 in August, 49 in September, see Page 20)
105 x 6 + 16% weighting factor = projected
volume FY 77/78 = 731

Cost:

Pickup fee for MVLS Headquarters
$2/week x 52 weeks = $104

Package fee
32.7¢/item (see page 20) x 731 items = 240

Materials fee
731 items ÷ 3.28 items/package = 223 packages
223 trips in #6 jiffy bags, used 3 times ea.
= 75 bags x 23.¢ ea. = 18

Miscellaneous tape, staples = 10

$372

This $372 figure is based on FY 77/78 volume and costs. When such service becomes implemented, it is expected that the volume will increase. When items get delivered faster to Bridgeport, it is anticipated that the request level will increase, necessitating an increase in the delivery budget. An arbitrary 25% cost increase figure is being used here, resulting in a FY 78/79 UPS - Mono County cost of:

$372 + 25% = $465

IV. Branch Costs for MVLS van delivery service

It is recommended that the various methodologies presented in Pages 29-31 for costing branch delivery be studied by the MVLS Budget and Long Range Planning Committee in preparing the FY 79/80 budget.

V. Continuation of Tri-System van service

It is recommended that the Tri-System van be continued for at least one more year. While the cost of this service for intersystem deliveries (71.6¢ per item, see Page 39) is higher than the cost of United Parcel Service for inter-system materials delivery (26¢ per item, see Page 40), the service has not been in effect long enough to make a decision on its benefit. It is recommended that the Tri-System Governing Council explore ways to make better use of the van in ways that will increase its volume.

Since the volume of materials sent by the North Bay Processing Center to the North State Cooperative Library System is expected to drop during FY 78/79, it is recommended that no cost breakout for this add-on service be prepared at this time. The methodologies presented on Pages 39 to 41 could be used to determine this cost breakout when the volume stabilizes.

APPENDIX

Contents:

MVLS Delivery Network - Participating Locations

MVLS Delivery Network - Mileage Chart

MVLS van drivers' schedules, 1977

Delivery Sample Forms and Instructions

MVLS DELIVERY NETWORK - PARTICIPATING LOCATIONS

Roseville Public Library

California State Library

MVLS Headquarters

Sacramento Public Library
- Sacramento Central

Sutter County Library
- Sutter Branch
- Live Oak Branch
- Robbins Branch

Yuba County Library

Yuba College Library

Nevada County Library
- Grass Valley Branch
- Truckee Branch*

Auburn-Placer County Library
- Colfax Branch
- Loomis Branch
- Penryn Branch
- Dutch Flat Branch
- Applegate Branch
- Forest Hill Branch
- Rocklin Branck
- Tahoe City Branch*
- Kings Beach Branch*

Cosumnes River College Library

Sacramento City College Library

Lincoln Public Library

Calif. State University, Sacramento, Library

Sacramento Medical Center Library

University of California, Davis, Library

Yolo County Library
- Elkhorn Village Branch
- Arthur F. Turner Branch
- Davis Branch

Woodland Public Library

El Dorado County Library
- Shingle Springs Branch
- El Dorado Hills Branch
- Georgetown Branch
- Pollock Pines Branch
- Lake Valley Branch

Alpine County Library

Roseville Community Hospital Library

Sierra College Library

Douglas County, Nevada, Library

El Dorado IMC**

Placer County IMC *

Woodford School **

* These stops are made by the Placer IMC van.
** These stops are reciprocal, MVLS van makes IMC stops in exchange for the Tahoe area stops made by the IMC van.

MVLS DELIVERY NETWORK - MILEAGE CHART

	Auburn	Grass Valley	Lincoln	Los Rios	Markleeville	Marysville	MVIC HQ	Placerville	Roseville	Sierra	State Library	UCD	Woodland	Yuba City	Cosumnes	Sac City Coll	CSUS	Roseville Hosp	Nevada City	SPL Admin
SPL Admin							8				7				5					0
Nevada City		4																	0	
Roseville Hosp									5									0		
CSUS	34	62	28	3	138	48	5	43	17	22	5	19	25	50			0			
Sac City Coll							4								10	0				
Cosumnes							12		29						0	10				
Yuba City	42	44	27	49	176	2	40	80	38	40	45	49	38	0			50			
Woodland	52	78	42	26	165	40	22	69	33	39	22	11	0	38			25			
UCD	50	76	44	18	157	51	14	61	33	38	14	0	11	49			19			
State Library	37	62	30	5	143	44	1	47	19	25	0	14	22	45			5			7
Sierra	14	40	14	20	144	38	25	48	6	0	25	38	39	40			22			
Roseville	18	45	11	15	141	36	19	45	0	6	19	33	33	38	29		17	5		
Placerville	38	64	53	46	96	78	47	0	45	48	47	61	69	80			43			
MVIC HQ	36	62	31	4	143	43	0	47	19	24	1	14	22	45	12	4	5			8
Marysville	40	42	25	47	174	0	43	78	36	38	44	51	40	3			48			
Markleeville	134	150	149	140	0	174	143	96	141	144	143	157	165	176			138			
Los Rios	32	59	26	0	140	47	4	46	15	20	5	18	26	49			3			
Lincoln	15	41	0	2[illegible]	149	25	31	53	11	14	30	44	42	27			28			
Grass Valley	26	0	41	59	150	36	62	64	45	40	62	76	78	44			62		4	
Auburn	0	23	14	32	134	40	36	38	19	14	37	50	52	42			34			

California Department of Finance Mileage Tables

MOUNTAIN-VALLEY LIBRARY SYSTEM

Delivery Schedule as of August, 1977

ROUTE 1 - DRIVER: CATHY HALE

MONDAY

Placer Yard, Roseville	7:30
Roseville Public	8:10
California State Library	8:55
MVLS HQ/SPL Central Branch	9:10
Sacramento Public HQ	9:40
MVLS HQ/SPL Central Branch	10:10
Sutter County	11:35
Yuba County/Yuba College	11:55
LUNCH	
Nevada Co. (Grass Valley)	1:25
Nevada Co. (Nevada City)	1:45
Nevada Co. (Grass Valley)	2:10
Auburn-Placer	2:45
Lincoln Public	3:20
Placer Yard, Roseville	3:35

TUESDAY

Placer Yard, Roseville	7:30
Roseville Public	8:10
California State Library	8:55
MVLS HQ/SPL Central Branch	9:10
Sacramento Public HQ	9:40
MVLS HQ/SPL Central Branch	10:10
Sutter County	11:35
Yuba County/Yuba College	11:55
LUNCH	
Nevada Co. (Grass Valley)	1:25
Nevada Co. (Nevada City)	1:45
Nevada Co. (Grass Valley)	2:10
Auburn-Placer	2:45
Placer Yard, Roseville	3:20

WEDNESDAY

Placer Yard, Roseville	7:30
Roseville Public	8:10
Cosumnes River College	9:00
Sacramento City College	9:20
MVLS HQ/SPL Central Branch	9:40
Sutter County	11:00
Sutter branches	11:25
Yuba County/Yuba College	12:30
LUNCH	
Nevada Co. (Grass Valley)	2:00
Nevada Co. (Nevada City)	2:20
Nevada Co. (Grass Valley)	2:40
Auburn-Placer	3:10
Lincoln Public	3:40
Placer Yard, Roseville	4:10

THURSDAY

Placer Yard, Roseville	7:30
Roseville Public	8:10
California State Library	8:55
MVLS HQ/SPL Central Branch	9:10
Sacramento Public HQ	9:40
MVLS HQ/SPL Central Branch	10:10
Nevada Co. (Grass Valley)	11:40
Nevada Co. (Nevada City)	12:00
Nevada Co. (Grass Valley)	12:20
LUNCH	
Colfax Branch (Auburn)	1:30
Dutch Flat Branch (Auburn)	2:00
Applegate Branch (Auburn)	2:30
Auburn-Placer	2:50
Placer Yard, Roseville	3:30

FRIDAY

Placer Yard, Roseville	7:30
Roseville Public	8:10
CSUS	8:40
Sacramento Medical Center (UCD)	9:00
Cosumnes River College	9:25
Sacramento Public HQ	9:50
Sacramento City College	10:20
California State Library	10:35
MVLS HQ/SPL Central Branch	10:50
Sacramento Public HQ	11:35
UCD	12:10
Yolo County/Woodland Public	12:45
LUNCH	
Sutter County	2:15
Yuba County/Yuba College	2:35
Lincoln Public	3:15
Auburn-Placer	3:45
Placer Yard, Roseville	4:15

NOTE:

Delivery to Nevada County branch at Truckee and Auburn-Placer branches at Tahoe City and Kings Beach are made by Placer County Instructional Materials Center on Mondays.

There is no van delivery to Mono County. Delivery to Mono is made by MVLS HQ via United Parcel or mail.

ROUTE 2 - DRIVER: FRED HARTLEY

MONDAY

Placer Yard, Roseville	7:30
Sierra College	7:50
Auburn-Placer	8:10
Placer County IMC	8:20
El Dorado County	9:35
El Dorado County IMC	9:50
Shingle Springs Br. (El Dorado)	10:10
El Dorado Hills Br. (El Dorado)	10:30
CSUS	10:50
Sacramento Medical Center (UCD)	11:05
Sacramento City College	11:20
Cosumnes River College	11:40
MVLS HQ/SPL Central Branch	12:00
Elkhorn Village Br. (Yolo)	12:25
Arthur F. Turner Br. (Yolo)	12:40
LUNCH	
UCD	1:30
Yolo County/Woodland Public	2:00
Roseville Public	3:25
Placer Yard, Roseville	3:45

TUESDAY

Placer Yard, Roseville	7:30
Auburn-Placer	8:00
Placer County IMC	8:20
Forest Hill School (IMC)	9:10
Forest Hill Branch (Auburn)	9:20
Georgetown Br. (El Dorado)	10:05
El Dorado County	10:45
El Dorado IMC	11:00
CSUS	11:50
MVLS HQ/SPL Central Branch	12:20
LUNCH	
UCD	1:40
Davis Branch (Yolo)	1:50
Yolo County/Woodland Public	2:15
Roseville Hospital	3:00
Roseville Public	3:25
Placer County IMC	3:55
Placer Yard, Roseville	4:25

WEDNESDAY

Placer Yard, Roseville	7:30
Sierra College	7:50
Auburn-Placer	8:10
El Dorado County	9:20
CSUS	10:10
Sacramento Medical Center (UCD)	10:25
MVLS HQ/SPL Central Branch	10:40
UCD	11:20
LUNCH	
Yolo County/Woodland Public	12:35
Rocklin Branch (Auburn)	2:00
Loomis Branch (Auburn)	2:15
Penryn Branch (Auburn)	2:30
Roseville Public	2:45
Placer Yard, Roseville	3:00

THURSDAY

Placer Yard, Roseville	7:30
Auburn-Placer	8:00
El Dorado County	9:25
CSUS	10:20
MVLS HQ/SPL Central Branch	10:35
UCD	11:10
Davis Branch (Yolo)	11:20
Yolo County/Woodland Public	11:50
LUNCH	
Sutter County	2:05
Yuba County/Yuba College	2:25
Roseville Hospital	3:20
Placer Yard, Roseville	3:30

FRIDAY

Placer Yard, Roseville	7:30
Sierra College	7:50
Auburn-Placer	8:10
Placer County IMC	8:20
El Dorado County IMC	9:10
El Dorado County	9:20
Pollock Pines Br. (El Dorado)	9:45
Woodford (IMC)	11:10
Alpine County	11:25
LUNCH	
Lake Valley Br. (El Dorado)	12:40
Douglas Co. Br. (Nevada State)	1:00
El Dorado County	2:25
Placer Yard, Roseville	3:20

MOUNTAIN-VALLEY LIBRARY SYSTEM
828 I Street
Sacramento, California 95814

INTER-LIBRARY MEMO

TO: All MVLS libraries

FROM: Maureen Trimm, Resource Development Librarian - MVLS

SUBJECT: Delivery analysis

DATE: July 6, 1977

As part of our objectives for the System this year, MVLS is taking on an analysis of methods of delivering books and other materials between System libraries. The Executive Council has named an ad hoc committee to establish the scope, objectives and methodology for this study.

This study came about because of concerns among some MVLS Council members and staff over the ever increasing cost of maintaining our private delivery vans. If, indeed, these vans are the best way to deliver material, we need to justify their expense. Without any hard data and comparison data, we could only make guesstimates of the vans' cost-efficiency. Therefore, an analysis of delivery methods will be conducted under the direction of Maureen Trimm.

The process for a "system analysis", in this case a delivery system analysis, calls for the following steps:

1. State the problem;
2. Identify relative objectives;
3. Select evaluation criteria;
4. Identify alternatives;
5. Estimate costs of each alternative;
6. Determine effectiveness of each alternative;
7. Present findings; and lastly,
8. Use findings for future decision making.

The ad hoc delivery analysis committee has completed several of the above steps. The full description of the methodology, the objectives, evaluation criteria and objectives will be printed in the final reports. At this point, we can say that the problem statement is to determine the best method of delivering library materials among MVLS libraries.

The essential criteria include: our financial limitations, the geography of the area, the necessity for speed of delivery, the importance of careful routing, time spent in preparing materials to enter the delivery system, materials necessary for packaging, frequency of delivery, support time for preparing materials for delivery, and delivery system time.

Alternatives being looked at include: the current private vans, a rerouting of present vans, use of a common carrier such as UPS, use of contract carriers, interfacing with other private delivery vans, and combinations of the above.

Estimation of the costs of each delivery method will of course depend upon a count of the number of materials to be transported. A sample to be conducted at MVLS headquarters will determine a weight factor for any specific number of items of any type.

The data collection for analysizing the current method will depend upon each and every location where the MVLS vans currently stop. Each location is asked to cooperate in counting the number of items they enter into the delivery system and categorize these items by type. This categorization is being done to assist in the study of alternative delivery methods. Obviously, under the current system, all items, no matter what their type, take the same amount of time for delivery. This might not be true in some of the alternative systems available to us.

By tallying the location each item is being shipped to, the analysis will assist us in determining traffic patterns of our delivery system. We can make judgments as to the effectiveness of the established routes and draw up a delivery system model which may be more applicable to our needs. We can also determine distances for possible rate differences in alternative delivery methods.

The success of this delivery analysis depends on the reliability of the data used. This is where each MVLS library becomes an important part of the study. We need your input, your exact tallying of delivery shipments you put on the MVLS van. A sample will be conducted during the entire months of August and September. The enclosed instructions explain how to use the tally forms. Daily tallying will be transferred to a weekly summary form which will be sent in to Maureen Trimm at MVIC. This will help us stay on top of the data as it is collected and allow us to complete the study by November. The final report will be presented to the MVLS Executive Council in December. The California State Library has asked us to have the complete study to them by January 1.

We realize that this study will take some of everyone's precious time. If you get in the habit of counting an item as it is put on the shelf for our drivers to pick up, the work burden may be shared upon all who handle MVLS deliveries. We feel that the value of this study necessitates asking for your time, cooperation and conscientiousness. If at any time during the study, you have any questions related to it, please call Maureen Trimm. Thank you.

INSTRUCTIONS

For the entire months of August and September, an item count of all items sent on the MVLS delivery vans will be made. This information will be used to determine the per item cost of these private delivery services and to analyze the cost efficiency of such a system. The count will include each and every item sent on the vans from its point of pickup to point of delivery. The data tabulation sheets are designed so that other analyses could be made at a later point, such as the percentages of carried material which are branch shipments, correspondence, or what locations have the most traffic, etc.

The item count will be made by the sending library. Each pickup point where an MVLS van stops will tally its daily shipments on the appropriate form.

The shipments to other MVLS libraries should be tallied on the green form. Use the roomier form for daily tabulating. Simply put a hatchmark by the name of the library you're sending material to each time you place an item on the shipment shelf, box, etc. At the end of the week, tally the hatchmarks and transfer the final count to the one-sheet full MVLS schedule, or tally in any way that is convenient for you and will result in a weekly total.

There is one extra unmarked green form. This is for county headquarters libraries who make many deliveries to different branches via MVLS vans. Divide this sheet into branch names where MVLS vans make stops and tally shipments to these places on this form. If you don't need this extra sheet, discard it. If you do use it, send it in weekly along with the MVLS final count sheet.

Each item being sent on delivery should be tallied as to its type. (See enclosed category classification descriptions.) The total number of items of each type sent to any particular receiving point should be tallied in the column under item classification and beside its location where it is being sent. The only distinction as to branches is made for the Tahoe area branches. All other items being shipped to a county library's branches would be tallied beside its "branches" location, i.e. Sutter County, branches, or beside the county headquarters name if its branches are not a delivery point of an MVLS van, i.e. Roseville Public.

Sacramento Public Library directed material will be handled slightly different. If your shipment to SPL is marked to go to a specific branch, such as film ILL's or film packets, tally them beside the Sac. Public/Admin. column. If the shipment is coming to MVLS headquarters for redirection to an SPL location, tally beside the MVLS headquarters column.

Another exception are deliveries to Mono County. If you have a shipment which is to go to Mono, tally it beside the Mono column, even though the material will actually come to MVLS headquarters to be redirected to Mono by mail or UPS.

At the beginning of each week, Monday, take down last week's tally sheets, total them and send the totals in to Maureen Trimm at MVLS. Then start a new sheet for the new week Monday-Friday.

If you have <u>no</u> items sent out from your library during any week of this study, place a large goose egg on your weekly summary sheet and return it to MVLS headquarters.

DELIVERY ITEM CATEGORIES
(Corresponding to numbered columns on item tally sheets)

1. ILL DELIVERIES	Books, periodicals, pamphlets, microform, photocopy or other print item being sent to another library to fill an ILL request. Each separately identified item should be tallied as one entry, i.e. one book, one bound journal, one 10-page photocopy article, one unbound journal - each is only one item.
2. RETURNS	Any print material being sent back to its owning library, includes ILL returns and reciprocal returns.
3. REQUESTS	Filled in request forms being sent to Systems headquarters or area reference library or to Tri-System member library. Count each separately bundled envelope of requests as one item, no matter how many requests in the envelope or size of the envelope.
4. BRANCH SHIPMENT	Any print material being sent from a county headquarters library to one of its branches, or any such material being sent from one branch to another of the same county's system, or by a branch back to its headquarters. Each separately identified item should be tallied as one item.
5. FILM SHIPMENT	Regularly scheduled rotation of film packets. Please include number of films in the packet. For example, if your packet contains 18 films and you place it in two boxes for its bi-monthly rotation, mark down 18 items on the tally sheet. Also include in this category regularly scheduled shipments of films to MVLS for inspection. Films which are damaged or withdrawn and are being returned to MVLS should be tallied in Category #15 - MISC.
6. FILM ILL	Films being returned to assigned library or being sent to requesting library on ILL; this includes MVLS owned films, Sacramento Public films, community college films or films owned by any MVLS member.
7. DATED CORRESPNDENCE	Letters, meeting notices, Executive Council packets or any memos or other written communication which has a strict time value.

8. NON-DATED CORRESPONDENCE	Any addressed correspondence which is not under a time limit in its delivery, such as newsletters, meeting minutes, film catalog annotations. Do not include large quantity shipments of bibliographies, brochures, etc., in this category. These should be in #9.
9. SUPPLIES	Any library supply, forms, brochures, large shipments of bibliographies, summer reading materials, film reels or related items.
10. EQUIPMENT	A-V hardware, projectors, recorders, microfiche readers, etc. Also includes hardware/software combinations such as the MVLS slide presentation in the recorder-projector unit. Count each separately boxed or cased item individually. For example, the MVLS slide-tape presentation counts as one item, but a separately cased projector and a separate recorder would tally as 2 items.
11. STATUS REPORTS	Written correspondence giving the status of an ILL request. Includes reports from System headquarters to members and from headquarters libraries to their branches, or among member libraries.
12. MIS-DIRECTED	Items being sent by delivery to their correct location which had been incorrectly received at the sending library. For example, an ILL directed to Sutter which was delivered to Yuba by mistake would be tallied by Yuba when forwarded on to its proper delivery point. Also includes items sent to this system by mistake, such as a request for MOBAC incorrectly sent to MVIC.
13. MISCELLANEOUS	The catch-all for items not defined elsewhere. Includes gifts, withdrawn films, any personal property, A-V software other than films, etc.
14. IMC DELIVERIES	Any item not owned by a member library being sent from one of the cooperating IMC pickup points to another IMC delivery point. Count each item separately, i.e. each film can would be tallied individually.
15. PROCESSING CENTER MATERIALS	Materials being sent from the NBCLS Processing Center to an ordering library.

MVLS Delivery Study, 1977

DELIVERY VAN WEEKLY SUMMARY (MOUNTAIN-VALLEY LIBRARY SYSTEM)

Sending library (include branch name, if applicable) _____ Date (week ending on Friday) _____

Type of item (see instruction sheet for code)

SENT TO:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Alpine Co.																	
Auburn-Placer																	
" , branches																	
" branches, Tahoe																	
CSC																	
CSUS																	
Cosumnes																	
El Dorado Co.																	
" , branches																	
" branch, Tahoe																	
Lincoln																	
MVLS HQ																	
Mono Co.																	
Nevada Co.																	
" , branches																	
" branch, Truckee																	
Roseville Hospital																	
Roseville Public																	
Sac. City College																	
Sac. Public/Admin.																	
Sac. Public/Central																	
Sierra College																	
Sutter Co.																	
" , branches																	
UCD																	
UCD Medical Center																	
Yolo Co.																	
" , branches																	

DELIVERY VAN WEEKLY ITEM TALLY

Sending Library (include branch name, if applicable) Week ending on Friday

SENT TO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
ALPINE COUNTY																
weekly total																
AUBURN-PLACER																
weekly total																
AUBURN-PLACER branches																
weekly total																
AUBURN-PLACER branches, Tahoe																
weekly total																
CALIFORNIA STATE LIBRARY																

DELIVERY VAN WEEKLY ITEM TALLY

Sending Library (include branch name, if applicable) Week ending on Friday

SENT TO:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
COSUMNES																
weekly total																
EL DORADO COUNTY																
weekly total																
EL DORADO COUNTY branches																
weekly total																
EL DORADO COUNTY branch, Tahoe																
weekly total																
LINCOLN																

DELIVERY VAN WEEKLY ITEM TALLY

Sending Library (include branch name, if applicable) Week ending on Friday

SENT TO:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
MONO COUNTY																	
weekly total																	
NEVADA COUNTY																	
weekly total																	
NEVADA COUNTY branches																	
weekly total																	
NEVADA COUNTY branch, Truckee																	
weekly total																	
ROSEVILLE HOSPITAL																	

DELIVERY VAN WEEKLY ITEM TALLY

Sending Library (include branch name, if applicable) _____ Week ending on Friday _____

SENT TO:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
SAC. CITY COLLEGE																
weekly total																
SAC. PUBLIC/ Admin.																
weekly total																
SAC. PUBLIC Central																
weekly total																
SIERRA COLLEGE																
weekly total																
SUTTER COUNTY																

DELIVERY VAN WEEKLY ITEM TALLY

Sending Library (include branch name, if applicable) Week ending on Friday

SENT TO:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
UCD																
weekly total																
UCD MEDICAL CENTER																
weekly total																
YOLO COUNTY																
weekly total																
YOLO COUNTY branches																
weekly total																
YUBA COLLEGE																

DELIVERY VAN WEEKLY ITEM TALLY

Sending Library (include branch name, if applicable) _____ Week ending on Friday _____

SENT TO:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
WOODLAND																
weekly total																
STATELINE, NEVADA																
weekly total																
PLACER IMC																
weekly total																
EL DORADO IMC																
weekly total																
NORTH BAY (NBCLS)																

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